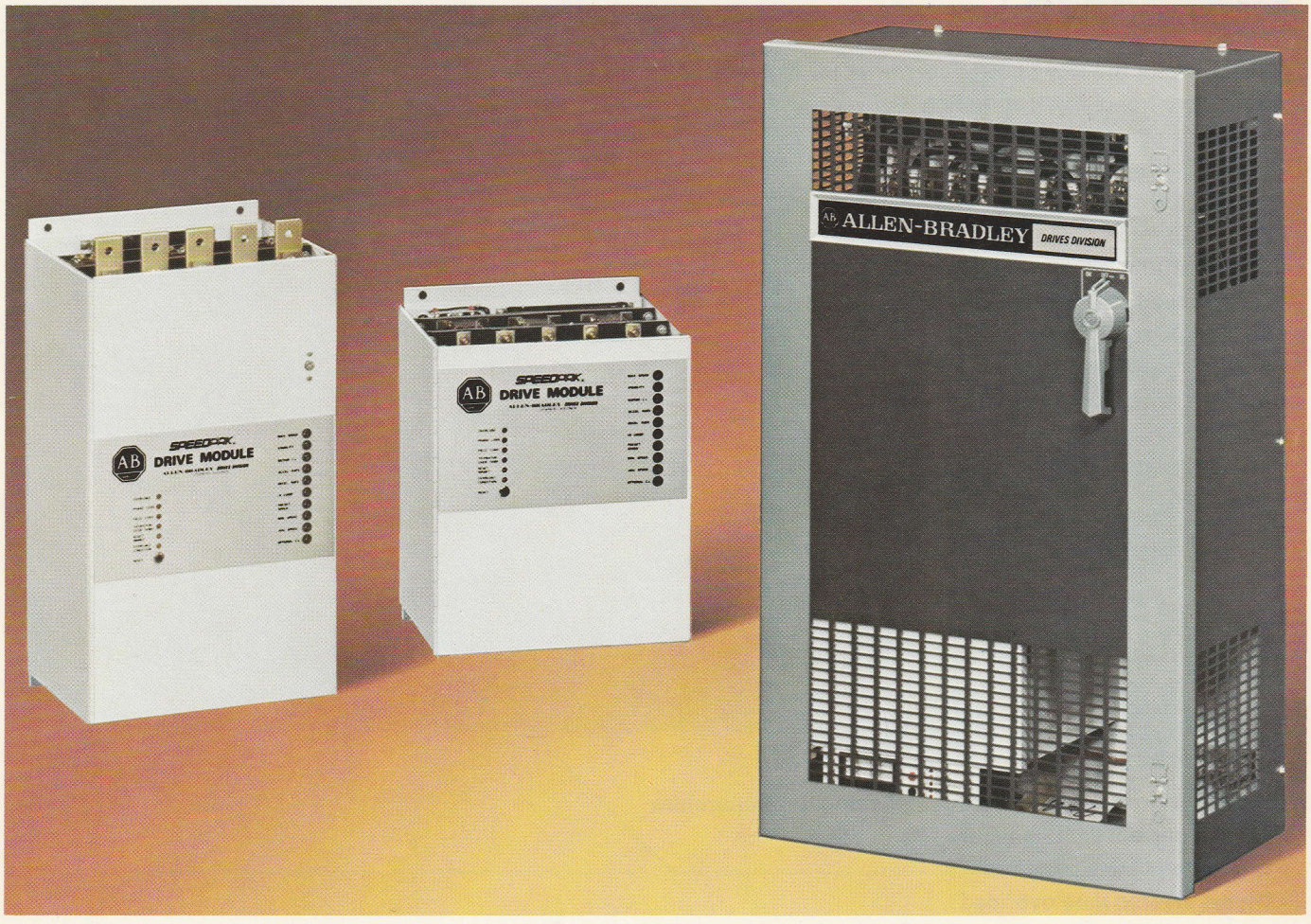
Bulletin 1379
Drive Modules
Bulletin 1381
Package Drives



Three Phase Static D.C. Drives

- Current rated modules
- Pre-engineered packages
- Extensive line of options

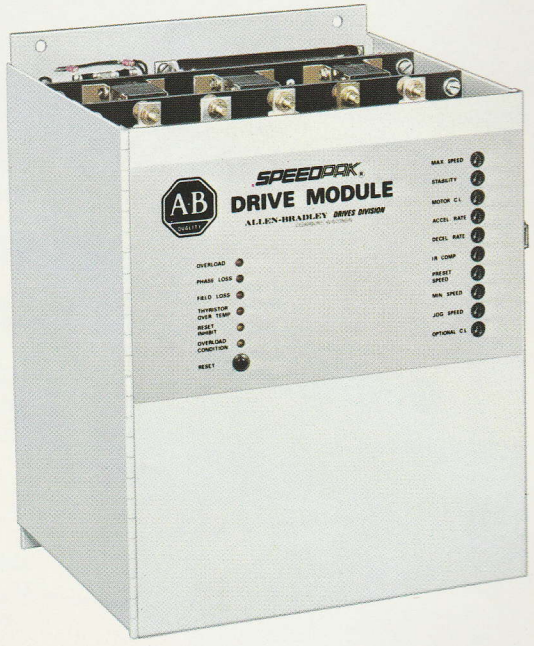
The modules-in perspective

The Bulletin 1379 Drive Modules are basic, pre-engineered, three phase AC to DC power conversion units including regulating and protective circuits. These modules possess the versatility, which is a feature of state-of-the-art design, to function well in static DC drives for a variety of machine and process applications. This flexibility results in a simple product line of compact modules. Further, the modules are current rated, enabling just two physical sizes to cover a broad range of horsepower values.

The customer may select in addition to a module, combinations of components to suit his needs for a drive, or the customer may choose the Bulletin 1381, a complete package drive based on the Bulletin 1379 module.

Highlights

- Six Thyristor full-wave power converter for high efficiency
- Digital control of thyristor gating
- Inner current loop regulator
- Current — not horsepower — rated
- Fourteen motor HP ratings are covered in only 2 sizes
- One main regulator board
- Separate adjustment circuit board
- Dual voltage operation
- 50 Hz/60 Hz operation
- Insensitive to phase sequence
- Memory type fault detectors with LED indicators
- Ammeter shunt
- Modular construction
- Designed to meet UL and CSA standards



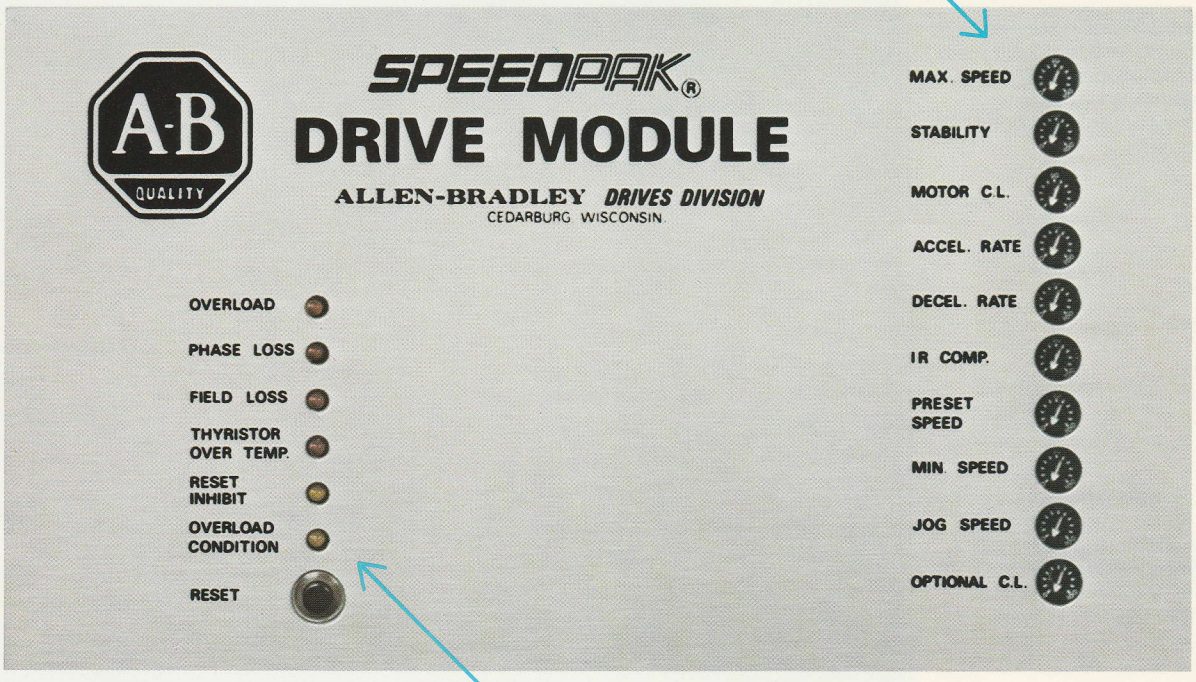
Protective features

- Heat sink thermistors to detect thyristor overtemperature
- AC line current limiting fuses
- Digital solid state overload
- Digital inverse time overload
- AC line chokes, R-C networks, MOVs
- CMOS technology for improved noise immunity
- Isolated regulator and power circuits
- Undervoltage protection
- Redundant field loss protection
- Current imbalance shutdown
- Phase loss protection
- Dead front construction

The modules-in front

Standard drive adjustments

- Convenient through-the-door accessibility allows adjustment of the potentiometers without opening the door
- Separate potentiometer board permits main regulator board replacement without readjustment



Distinctive diagnostic indicators

- Memory type display remains illuminated until fault is corrected
- Provides indication when motor is operating in an overcurrent condition
- Reset is inhibited until overload or thyristor overtemperature condition clears

The modules-inside

One main circuit board design suffices for all three of the current ratings of Bulletin 1379 modules. Physically, however, the modules come in only two sizes, the smaller for modules rated at 105 Amps, the larger for modules rated at either 250 Amps or 345 Amps. The modules were designed to meet applicable UL, CSA and NEMA standards.

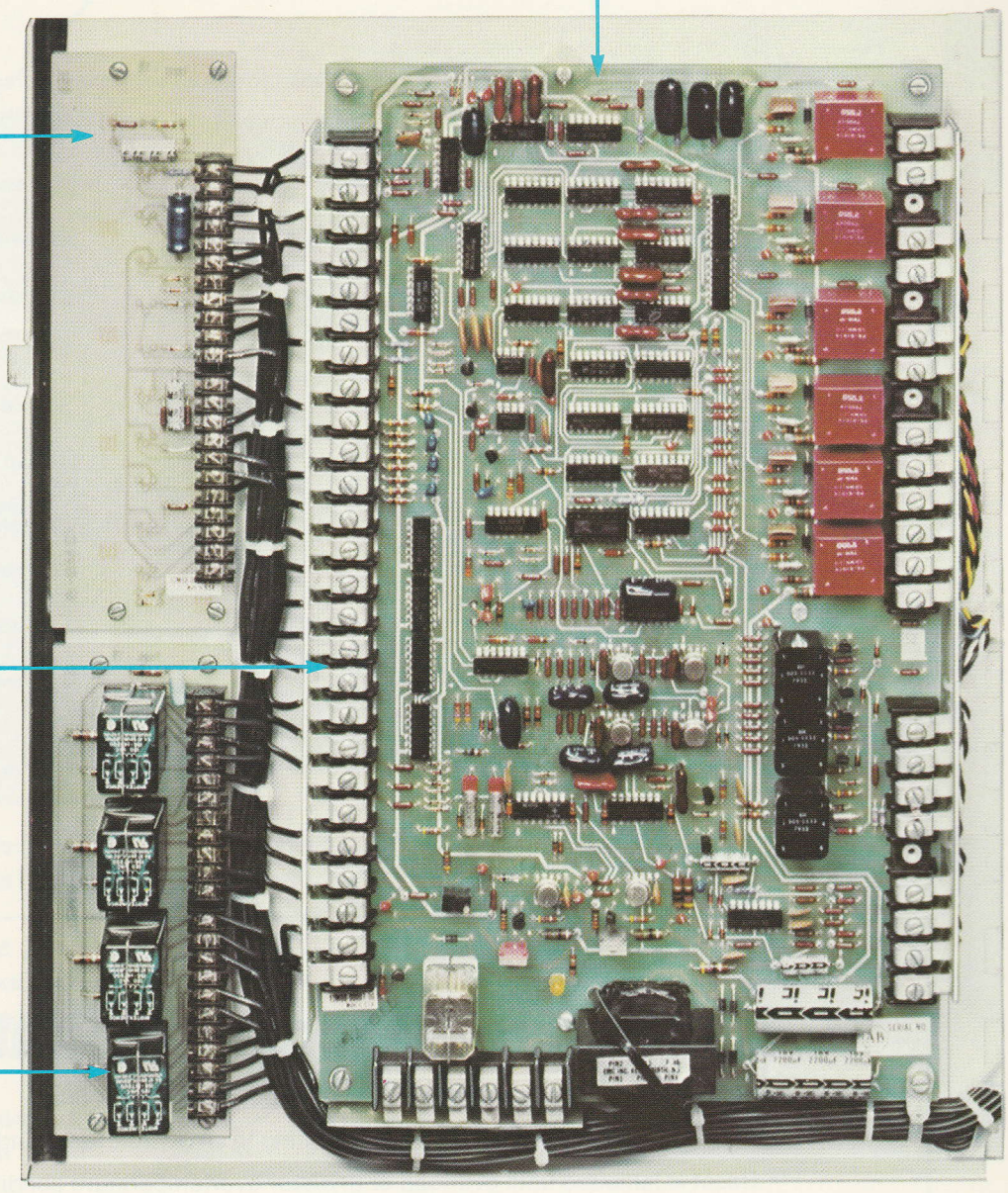
Logic and Regulator Assembly

Main circuit board
- Only one board needed for drives rated from 7½ to 200 HP
- Board components predominantly of integrated circuits
- Extensive use of digital technology

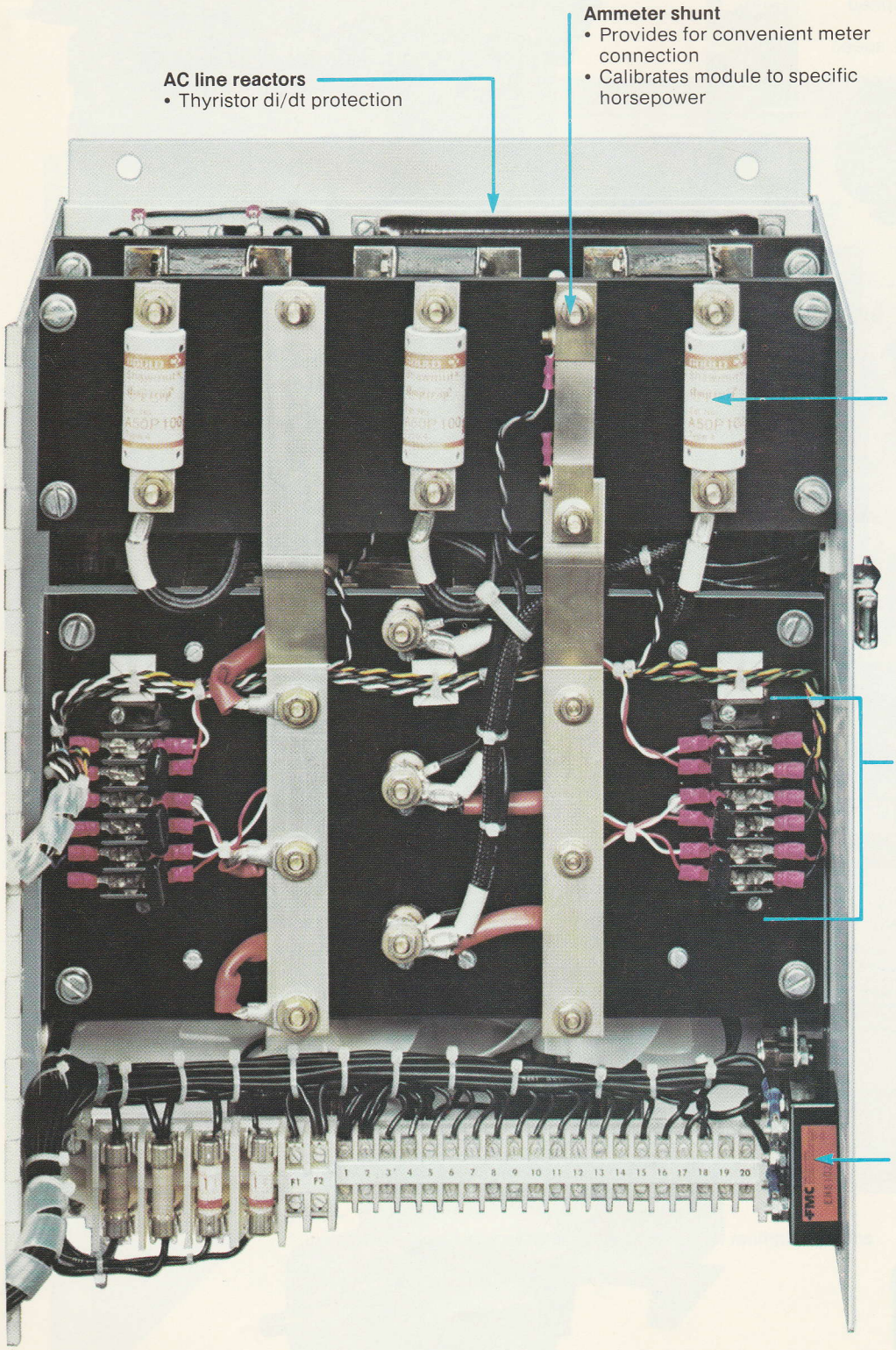
Adjustment board
- Separate board to permit main board replacement without readjustment
- Provides through-the-door adjustments

Screw type terminals
- Rugged connections
- Patented design

Relay assembly
- Run
- Reference
- Preset speed
- Jog

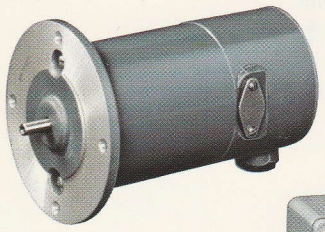


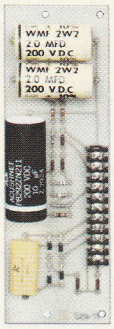
Power Unit Assembly

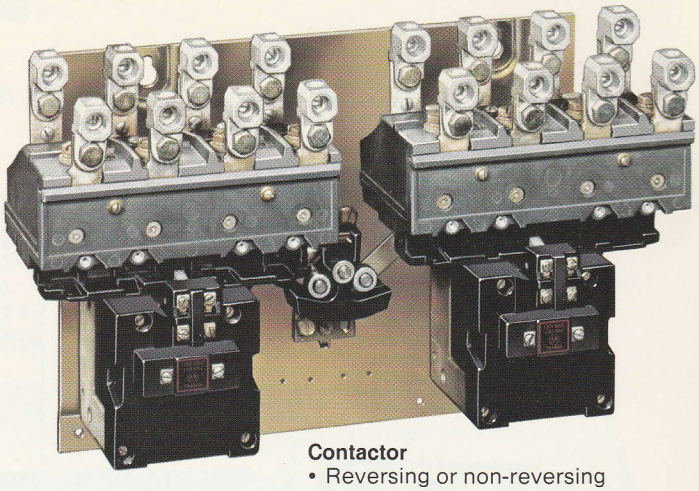


Options available with the modules

Tachometer and tach feedback board
- AC tachometer permits 1% speed regulation
- DC tachometer permits 0.1% speed regulation

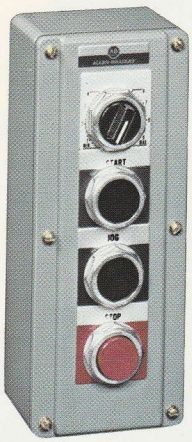






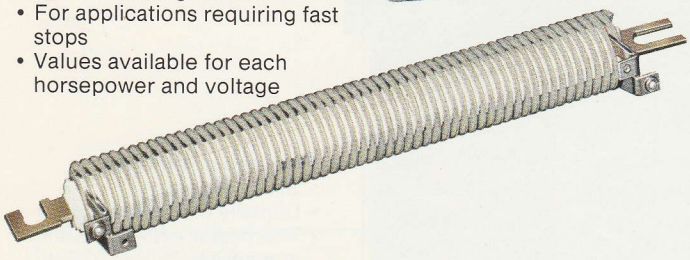
Contactor
- Reversing or non-reversing contactors available
- Allen-Bradley reliability

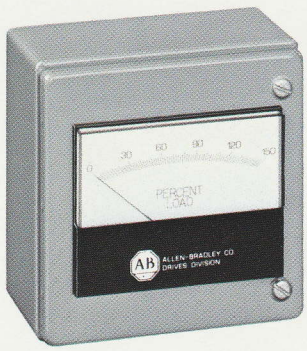
Operator control station
- Wide variety available
- NEMA Type 13
- Allen-Bradley quality



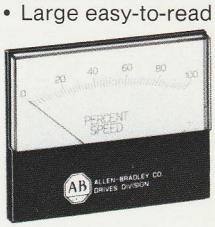
Circuit breaker
- Provided with or without external handle

Dynamic braking resistor
- For applications requiring fast stops
- Values available for each horsepower and voltage





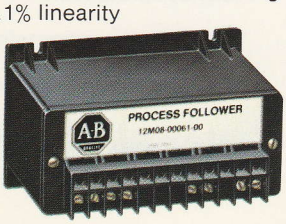
Speed and load indicators
- Rugged taut band construction
- Large easy-to-read scales



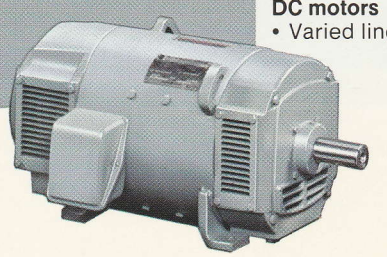
Circuit analyzer
- Provides selectable test points that may be monitored by meter or oscilloscope

Isolation transformer
- NEMA Type 1 enclosures for remote mounting
- 1-5% FCAN & FCBN taps

Process instrument follower
- 0-10 V DC or 4-20 mA DC signals
- 0.1% linearity

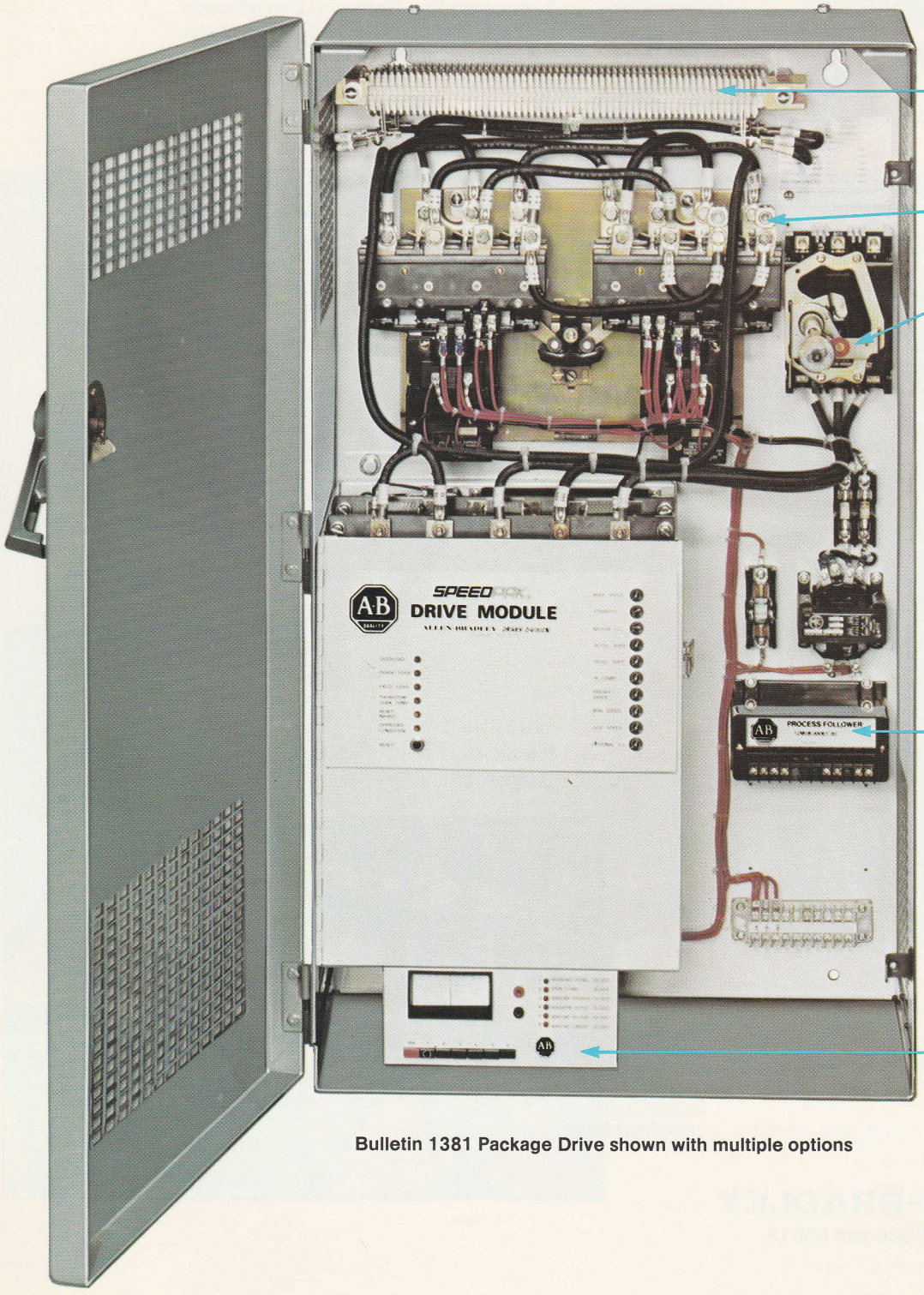


DC motors
- Varied line of ratings and options



The Package Drive: complete and pre-assembled

All of the features of the Bulletin 1379 Modules apply to the Bulletin 1381 Package Drives, since the module is the conversion, regulation and protection center of each Package Drive.



Bulletin 1381 Package Drive shown with multiple options

Specifications and dimensions

Description
Bulletin 1379 modules are available in two physical sizes, with the small module current rated at 105 AMPS DC, and the large modules rated at 250 AMPS and 345 AMPS. These modules serve horsepower ratings to the following respective maximums:

105 Amp Module: 30 Horsepower at 240 Volts DC
60 Horsepower at 500 Volts DC
250/345 Amp Module: 100 Horsepower at 240 Volts DC
200 Horsepower at 500 Volts DC

Module output ratings provide for standard DC motor ratings of 240-volt or 500-volt armature power and 150-volt or 300-volt field power.

Specifications
1. Electrical
   a. Input Power — 3 phase, 50/60 Hz, 230V AC or 460V AC +10%, −5%
   b. Output
      Motor Field Supply: 3 phase, rectified power at 150 or 300V DC (10 Amperes maximum)
      Armature Power Supply: 3 phase, full-wave (6-pulse)

      105 Amp Module —
      7½ to 30 HP at 240V DC
      7½ to 60 HP at 500V DC

      250 Amp Module —
      40 to 75 HP at 240V DC
      75 to 150 HP at 500V DC

      345 Amp Module —
      100 HP at 240V DC
      200 HP at 500V DC

   c. Current Limit Range
      0% to 100% rated armature current for continuous operation; to 150% armature current for 1 minute
   d. Speed Range
      20 to 1 with armature voltage feedback; up to 1000 to 1 with tachometer-generator feedback
   e. Speed Regulation
      2% with armature voltage feedback (as supplied)
      Up to 0.1% with tachometer-generator feedback (optional equipment)
2. Environmental
   a. Ambient Temperature — 0° C to 40° C
   b. Altitude — To 3300 feet (1000 meters)

Adjustments
"Upfront" potentiometers for the following functions:
a. Minimum Speed — 0 to 50%
b. Maximum Speed — 80 to 110%
c. IR Compensation (for armature voltage feedback only)
d. Jog Speed — 0 to 50%
e. Preset Speed — 0 to 100%
f. Acceleration Rate — 0.2 to 60 secs.
g. Deceleration Rate — 0.2 to 60 secs.
h. Current Limit — 0 to 150%
i. Stability

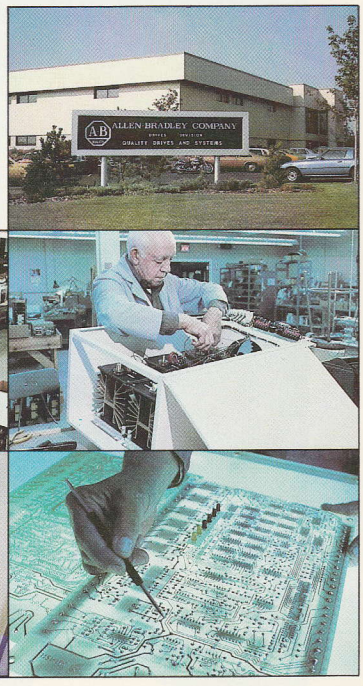
Outline dimensions
BULLETIN 1379 - Drive Module
105 Amp Module:
13-1/8" W x 17-1/2" H x 11-5/8" D
(33.34 cm x 44.45 cm x 29.53 cm)

250 Amp or 345 Amp Module:
13-1/8" W x 24-1/2" H x 11-5/8" D
(33.34 cm x 62.23 cm x 29.53 cm)

BULLETIN 1381 - Package Drive
23-1/8" W x 38-7/8" H x 12-7/8" D
(58.74 cm x 98.74 cm x 32.70 cm)
27-1/8" W x 45-7/8" H x 12-7/8" D
(68.90 cm x 116.52 cm x 32.70 cm)
34-1/8" W x 47-7/8" H x 12-7/8" D
(86.68 cm x 121.60 cm x 32.70 cm)

For further information, contact your local Allen-Bradley Sales Office, or write Allen-Bradley Company, Drives Division, N143 W6437 Pioneer Road, Cedarburg, Wisconsin 53012. Telephone: (414) 377-1200

Qualified Factory/Field Support



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